Deaf Education

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Introduction

Deaf education aims to address the educational, linguistic, cultural, and social needs of students who are deaf or hard-of-hearing by providing a continuum of services based on their individual needs. In the United States, deaf education dates back to the 1800s when both oral and manual methods of instruction were imported from Europe. There are three main communication methods used in the education of deaf and hard-of-hearing students: (1) the oral approach, also known as the listening and spoken language method, emphasizes the use of hearing amplification technology (hearing aids and cochlear implants) in order to develop spoken language skills; (2) the Total Communication approach advocates for the use of multiple means of communication, including signing that follows English word order, speaking, lip reading, listening via amplification technology, and finger spelling, to address the students' needs; (3) the bilingual-bicultural approach, also known as the American Sign Language (ASL)/English bilingual approach, and sign bilingualism outside of the United States, adheres to the principles of additive bilingualism and aims to develop proficiency in a signed and a spoken language. Controversy over which approach is most appropriate to educate deaf and hard and hearing children persists to this day. Schools where students who are deaf or hard-of-hearing are educated vary depending on the level of integration they have with hearing students. They may be educated in full inclusion, mainstream programs, or special schools (day and residential schools for the deaf), each providing different levels of support and access. The passing of the Individuals with Disabilities Education Act (IDEA), which required states to provide "free appropriate public education" in the least restrictive environment (LRE) as determined by the child's individualized education plan (IEP), had an impact on the number of deaf and hard-of-hearing children who were then placed in regular classrooms (full inclusion and mainstream settings). The educational and deaf communities argued that this placement did not lead to appropriate education, and that it was the opposite of LRE because it did not consider the language and communication needs of children who were deaf or hard-of-hearing. Access to language and communication as well as literacy development is at the core of the research in the field of deaf education, with an overall

emphasis on the benefits that early identification and intervention have on their early language, academic, and social-emotional development.

General Overviews

This section includes materials that provide a historical perspective of the trends and issues that continue to be present in the education of deaf and hard-of-hearing children in the early 21st century. The origins of the oral versus manual debate are presented in historical context in the documentary *Through Deaf Eyes*. A collection of historical essays, Van Cleve 2007, introduces the reader to the birth and rise of deaf education in the United States leading up to the infamous 1880 International Convention in Milan, the growth of oralism, the creation of sign systems, and the beginnings of school integration. Each of these events and their lasting consequences continue to resonate in the social and academic discourse of the field. The history of the methods war and its impact on instruction, which in turn have had lasting impact on language and literacy development, is told in Moores 2010a, which integrates relevant research findings generated by both sides of the divide. Mitchell and Karchmer 2011 describes the heterogeneity among deaf and hard-of-hearing children and adults, highlighting the relations among demographics, educational setting, and academic success. Moores 2010b reports that the same trends and issues found in deaf education in the United States are mirrored across the globe.

- Hott, Lawrence, and Diane Garey, dirs. 2007. *Through deaf eyes*. DVD. Washington, DC: WETA and Florentine Films/Hott Productions.

  A two-hour documentary exploring 200 years of history in the American Deaf community. Education-related topics include the establishment of schools, the role of women in oral education, and the influence of Alexander Graham Bell. The video shares its title with a book that portrays American deaf history in photographs (*Through deaf eyes: A photographic history of an American community* [Washington, D.C.: Galludet Univ. Press, 2007.]

- Mitchell, Ross, and Michael Karchmer. 2011. Demographic and achievement characteristics of deaf and hard-of-hearing students. In *The Oxford handbook of deaf studies, language, and education*. Vol. 1. Edited by M. Marschark and P. Spencer. Oxford and New York: Oxford Univ. Press.

  A detailed description of student and family characteristics and their distribution and representation across various educational settings. The impact of several traits (gender, class, age, language) on academic achievement is discussed at length and specific correlations are noted.

- Moores, Donald F. 2010a. The history of language and communication issues in deaf education. In *The Oxford handbook of deaf studies, language, and education*. Vol. 2. Edited by M. Marschark and P. Spencer. Oxford and New York: Oxford Univ. Press.

  A review of the literature on language and communication including international perspective and historical roots of the methodology controversy. Includes a section on

definition of terms useful for any first-time reader. The depth of discussion also makes it appropriate for more knowledgeable readers.

- Moores, Donald F., ed. 2010b. *Partners in education: Issues and trends from the 21st International Congress on the Education of the Deaf*. Conference held 18–22 July 2010, Vancouver, BC. Washington, DC: Gallaudet Univ. Press.

  A compendium of the themes and abstracts from the 21st International Congress on the Education of the Deaf (ICED) brings forth issues that are both current and prevalent in the education of deaf children around the globe, including language and literacy, early intervention, diversity, poverty, and technology.

- Van Cleve, John V., ed. 2007. *The deaf history reader*. Washington, DC: Gallaudet Univ. Press.

  A collection of essays based on historical research narrating the deaf experience from the 17th to the 20th century. Essays 2, 5, and 6 address education issues including the banning of sign language and spread of oralism, the philosophical divide in instructional practices, and early types of school integration.

Textbooks and Edited Works

These resources encompass a range of topics and perspectives relevant to deaf education. The books are primarily geared toward pre-service teachers in deaf education but can also be beneficial for in-service teachers, professionals working with deaf and hard-of-hearing children, and researchers in the field. Moores 2001, Knoors and Marschark 2015, and Spencer and Marschark 2010 are comprehensive texts that cover a wide range of issues, trends, and topics in several areas of deaf education. Readers interested in focused discussions on key topics in the field can see Marschark and Spencer 2010 and Marschark and Spencer 2011 for language, literacy, and curriculum issues; Paul and Whitelaw 2010 for oral language and literacy development; and Parasnis 1998, which brings a cultural lens and a Deaf perspective to the research on language diversity. Christensen and Delgado 1993 and Moores and Miller 2009 address teaching culturally diverse deaf children, which is increasingly pertinent in the diverse world of the early 21st century.

- Christensen, Kathee M., and G. L. Delgado. 1993. *Multicultural issues in deafness*. White Plains, NY: Longman.

  This textbook considers the educational and social contexts of working with ethnically diverse deaf and hard-of-hearing children, including children from African American, American Indian, Hispanic, and Asian/Pacific Island families. It points to the need for a child-centered curriculum that focuses on accepting and embracing differences.

- Knoors, Harry, and Marc Marschark. 2015. *Educating deaf learners: Creating a global evidence base*. New York: Oxford Univ. Press.

This book provides a broad, comprehensive view of deaf education by considering the whole child. It includes international and interdisciplinary research and perspectives on the topic. It recognizes the major changes in deaf education and the future changes that are to come based on the advancement of technologies, new research on pedagogy and practice, and the questioning of what traditional schooling means.

- Marschark, Marc, and Patricia Spencer, eds. 2010. *The Oxford handbook of deaf studies, language, and education*. 2d ed. Vol. 2. Oxford and New York: Oxford Univ. Press.

  A comprehensive edited collection of topics written by instructors, researchers, and service providers addressing the most relevant issues in the field of deafness. Sections 2 and 3 focus on educational issues and literacy and curriculum issues, respectively, a valuable source of references for students and researchers alike.

- Marschark, Marc, and Patricia Spencer, eds. 2011. *The Oxford handbook of deaf studies, language, and education*. 2d ed. Vol. 1. Oxford and New York: Oxford Univ. Press.

  A comprehensive edited collection written by instructors, researchers, and professionals in the field of deaf education and linguistics. Sections 2 and 3 focus on educational issues and literacy education, respectively. Sections 4 and 7 address language development and the cognitive consequences of being deaf. Good source of references for students and researchers alike.

- Moores, Donald F. 2001. *Educating the deaf: Psychology, principles, and practices*. 5th ed. Boston: Houghton Mifflin.

  A textbook on deaf education including the psychology of deafness. Topics covered are thorough and include a detailed history in chapters 2 and 3 as well as other relevant topics, such as early intervention in chapter 10 and language and literacy teaching and learning in chapters 9, 11, and 12.

- Moores, Donald F., and Margery S. Miller, eds. 2009. *Deaf people around the world: Educational and social perspectives*. Washington, DC: Gallaudet Univ. Press.

  A one-of-a-kind edited resource exploring the evolution of deaf education around the world. This is a good resource to see common issues and trends in deaf education as well as cultural variance in education on a global scale.

- Parasnis, Ila, ed. 1998. *Cultural and language diversity and the deaf experience*. Cambridge, UK: Cambridge Univ. Press.

  This edited book has three sections covering research in bilingualism and biculturalism, culture and language diversity and the impact on the deaf experience, and personal experiences and insight from deaf individuals.

- Paul, Peter V., and Gail M. Whitelaw. 2010. *Hearing and deafness*. Burlington, MA: Jones & Bartlett.

  This book addresses the development of spoken language and literacy in deaf and hard-of-hearing children. It presents new insights related to the role of hearing rehabilitation to English language learning and focuses on how hearing impacts speech, language, and literacy. This book is intended for deaf educators, speech-language pathologists, and audiologists interested in working with deaf children and adolescents.

- Spencer, Patricia E., and Marc Marschark. 2010. *Evidence-based practice in educating deaf and hard-of-hearing students*. New York: Oxford Univ. Press.

  This resource is good for in-service and pre-service teachers, parents, and other professionals working with deaf and hard-of-hearing children. It provides a comprehensive understanding of what is known and what is not known about how deaf and hard-of-hearing children learn.

Journals

The following journals are considered the best sources for current research in deaf education and related fields. The journals' primary contributors are researchers and practitioners with some teacher and graduate student contributions. Although each journal has a different target audience, there is overlap in their readership as well as among the contributors. The *American Annals of the Deaf* focuses mainly on deaf education and related topics such as communication methods, teaching strategies, and issues about mainstreaming and residential schools. *Journal of Deaf Studies and Deaf Education* is an empirical-based journal that offers a comprehensive overview of deaf education and Deaf culture ranging across cultural, developmental, linguistic, and educational aspects. The *Deafness & Education International* covers international-level issues in the field of deaf education, while the *International Journal of Bilingual Education and Bilingualism* addresses general bilingual issues on an international level, with recurrent articles pertaining to deaf education and bilingualism. Journals covering oralism, assistive technology (hearing aids, cochlear implants), and listening and spoken language practices include the *Journal of Speech, Language, and Hearing Research*; *Language, Speech, and Hearing Services in Schools*; and The *Volta Review*. The *Sign Language and Linguistics* journal is internationally renowned for examining sign languages in various contexts and publishes education-related articles when the topic intersects with linguistic studies.

- *American Annals of the Deaf*. 1847–.

  A paid-subscription professional journal focusing mainly on education and related services for deaf and hard-of-hearing individuals. It is currently the longest-running publication covering deaf education, communication methods and strategies, language development, parent-child relationships, mainstreaming and residential schools, and teacher training and teaching skills.

- *Deafness & Education International*. 1999–.

This peer-reviewed international journal affiliated with the British Association for Teachers of the Deaf and the National Australian Association for Teachers of the Deaf addresses issues such as spoken language and sign language; personal, social, and cognitive development of deaf children; educational technology; and educational issues of deaf and hard-of-hearing children internationally. The journal also publishes book reviews in their quarterly issues.

- *International Journal of Bilingual Education and Bilingualism*. 1998–.

  A paid-subscription journal focused on a multidisciplinary approach to bilingualism and bilingual education across the world. Issues are published six times a year with contributions from varied disciplines including linguistics, sociology, education, and law. While this journal covers general bilingual education issues, there are articles discussing deaf-related issues such as sign language and education in various countries.

- *Journal of Deaf Studies and Deaf Education*. 1996–.

  A peer-reviewed scholarly journal with a mix of articles on Deaf culture and academically focused interests including cultural, developmental, linguistic, and educational topics. The abstracts can be read online, but only paid subscribers have online access to full articles from current issues. Four issues are published annually.

- *Journal of Speech, Language, and Hearing Research*. 1958–.

  An online-only, international, peer-reviewed bimonthly scholarly journal provides information in the following areas: speech, language, hearing, and communication disorders. Topics relating to the field of deaf education include hearing aids, cochlear implants, and assistive technology for deaf and hard-of-hearing students are addressed throughout the issues.

- *Language, Speech, and Hearing Services in Schools*. 1970–.

  The practice of speech-language pathology and audiology with school-aged children and adolescents, including early identification, children with cochlear implants, oralism, and educational considerations, is addressed in this quarterly, online-only, international, peer-reviewed scholarly journal.

- *Sign Language and Linguistics*. 1998–.

  A peer-reviewed, internationally based paid-subscription journal examines sign languages in the larger context of natural language to further understanding of signed languages in various environments.

- *The Volta Review*. 1899–.

A peer-reviewed, paid-subscription, quarterly journal that leads in the field of listening and spoken language communication for individuals who are deaf and hard-of-hearing. The most recent issues are available electronically. The journal covers the latest information in the areas of speech and language development, literacy skills, hearing technology, early intervention, and auditory rehabilitation of the deaf and hard-of-hearing population.

Professional Organizations

Several professional organizations exist to provide information, support, resources, networking, and professional development opportunities to parents, teachers, professionals, administrators, and the Deaf community at large, including the American Speech-Language-Hearing Association, the Conference of Educational Administrators of Schools and Programs of the Deaf, the Joint Committee on Infant Hearing, the Laurent Clerc National Deaf Education Center, the Listening and Spoken Language Knowledge Center, the National Institute on Deafness and Other Communication Disorders, the National Association of the Deaf, and the Association of College Educators—Deaf and Hard of Hearing.

- American Speech-Language-Hearing Association (ASHA).

  ASHA is dedicated to professionals in the fields of audiology, speech-language pathology, and speech and hearing science. Its focus is to advance these fields by establishing standards, providing training and certification, and promoting advocacy. ASHA publishes four professional journals.

- Association of College Educators—Deaf and Hard of Hearing (ACE-DHH).

  ACE-DHH is an organization for university faculty who prepare future teachers to work with students who are deaf and hard-of-hearing. The organization hosts annual conferences throughout the United States and Canada which attract faculty, doctoral candidates, and sign language interpreters.

- Conference of Educational Administrators of Schools and Programs of the Deaf (CEASD).

  CEASD, founded in 1868, supports leaders of schools and deaf and hard-of-hearing programs in providing equitable education opportunities. CEASD provides accreditation of schools and programs, hosts yearly conferences for administrators, and leads the Child First Campaign to address the educational needs of deaf and hard-of-hearing children.

- Joint Committee on Infant Hearing (JCIH).

  Founded in 1969, JCIH's mission has been the collaboration among various entities of early identification agencies in universal screening and identification of hearing loss in all newborns and infants. JCIH has position statements, principles and guidelines for screening, follow-ups, and habilitation for hospitals and agencies.

- [Laurent Clerc National Deaf Education Center](#).

  The "Info to Go" page of the Clerc Center website provides a vast list of resources relevant to deaf and hard-of-hearing students, parents, teachers, and professionals. Each topic leads the reader to annotated lists of additional resources, readings, reports, and research on the subject.

- [Listening and Spoken Language Knowledge Center](#).

  The site for the Alexander Graham Bell Association for the Deaf and Hard of Hearing focuses on promoting listening and speaking skills for children and adults with hearing loss via advocacy, professional development, and research. The site helps families, support service providers, and education professionals understand hearing loss, early diagnosis, and intervention.

- [National Association of the Deaf (NAD)](#).

  NAD is a civil rights nonprofit organization established in 1880 for and by deaf and hard-of-hearing individuals in the United States. NAD advocates for early intervention, education, employment, healthcare, and technology for the deaf and hard-of-hearing population.

- [National Institute on Deafness and Other Communication Disorders (NIDCD)](#).

  A branch of the National Institutes of Health, NIDCD produces, supports, and disseminates research and training related to hearing, voice, speech, and language. An ideal site for students and researchers looking for current statistics and information that has been gleaned from scientific discovery in these areas.

For Parents

The organizations in this section cater specifically to parents or have been set up by parents of deaf and hard-of-hearing children. The following also include resources for professionals: [American Society for Deaf Children](#), [BEGINNINGS](#), [Hands and Voices](#), and [Raising Deaf Kids](#).

- [American Society for Deaf Children (ASDC)](#).

  Focuses on disseminating information about full access to language for deaf and hard-of-hearing children. Aims to help parents to make informed decisions whether they choose hearing technologies or not. Families, educators, and other professionals can connect with each other, access information, and find referrals to services, schools, and organizations.

- [BEGINNINGS](#).

  BEGINNINGS is a nonprofit organization established in 1987 that provides emotional support, resources, and access to information to help parents make educated decisions.

BEGINNINGS serves hearing parents of deaf children and deaf parents of hearing children.

- [Hands and Voices](#).

  A nonprofit, parent-driven organization providing support, information, and services to families and their children regardless of mode of communication used (oral, cued, and manual).

- [Raising Deaf Kids](#).

  Established by the Deafness and Family Communication Center based at the Children's Hospital in Philadelphia, this site contains practical recommendations for the day-to-day and long-term choices parents need to consider as their child grows. The information goes beyond hearing technologies and includes information on school choice and learning to read and write.

For Teachers

The organizations and online publications in this section are specifically designed for teachers working with deaf and hard-of-hearing students in many capacities, including: [Convention of American Instructors of the Deaf](#), [National American Sign Language & English Bilingual Consortium for Early Childhood Education](#), *[Odyssey Magazine](#)*, and *[Volta Voices](#)*.

- [Convention of American Instructors of the Deaf (CAID)](#).

  Established in 1850, CAID is the oldest teacher organization in the field. The site serves as a clearinghouse for information on deaf education, networking opportunities, and advocacy efforts tailored for teachers, administrators, and educational interpreters.

- [National American Sign Language & English Bilingual Consortium for Early Childhood Education](#).

  A nonprofit organization established by professionals dedicated to the development, management, and coordination of ASL/English bilingual early childhood programs. The site provides visitors with ASL/English bilingual resources so that families and professionals are able to make well-informed decisions based on accurate information.

- *[Odyssey Magazine](#)*. 1999–.

  Reader-friendly magazine published once a year around a specific theme pertinent to the education of signing deaf children. Odyssey links research to practice and makes it accessible to pre-service and in-service teachers, as well as parents. Access is free online or by becoming a member of their distribution list.

- *[Volta Voices](#)*. 1994–.

Online magazine published quarterly on themes relevant to the education of oral deaf children who use spoken language as their primary mode of communication. Articles provide tips for professionals in fields related to hearing loss. Subjects of interest include hearing technology, early intervention, advocacy, and education.

Perspectives on Being Deaf

Anyone wishing to understand the differences in interpretations and perspectives that exist around many of the topics relevant to deaf education needs to understand the stance from which authors and researchers alike approach those topics. The medical community (doctors, audiologists, speech pathologists) refers to the varying levels of hearing access as a hearing impairment that falls under sensory disabilities, which can be genetic or acquired. The varying levels of auditory access are further used to categorize the level of loss an individual has. This view is referred to as the medical model, where the goal is to correct deafness and help deaf and hard-of-hearing children fit into mainstream society as much as possible. However, the varying levels of access become irrelevant when viewed from a cultural perspective where loss is viewed as a Deaf Gain. From a cultural perspective, deaf individuals view themselves as a minority group with their own beliefs, values, and ways of being. American Sign Language (ASL) is the language of communication for most members of the community. However, not everyone who is deaf or hard-of-hearing forms part of the Deaf community, as Bat-Chava 2000 suggests there are three identities individuals adopt: the culturally Deaf, the bicultural identity, and the culturally hearing.

The Culturally Deaf Perspective

For those interested in learning more about the Deaf-World, including education, social, and cultural values, Lane, et al. 1996 covers these topics. Padden and Humphries 2005 provides historical events relevant to the Deaf culture and the near-extinction of ASL. Padden and Humphries 1988 provides an insider perspective on deafness and Deaf culture and language in America. Deaf Gain is explained by Bauman and Murray 2014 as the ways society has benefited from the advantageous and unique contributions made by deaf people. Ladd 2003 coined the term "Deafhood" to provide a positive framework for the journey to become part of Deaf culture, and as a way of being a member of the community. The impact of society's perception of deaf people as a disability group is examined by Lane 2005.

- Bat-Chava, Yael. 2000. Diversity of deaf identities. *American Annals of the Deaf* 145.5: 420–428.

  Bat-Chava applies social identity theory, using cluster analysis, to analyze the three identities associated with deaf individuals as a minority group, which are culturally hearing identity, culturally Deaf identity, and bicultural identity. Findings indicated that those individuals with culturally Deaf and bicultural identities have higher self-esteem.

- Bauman, Dirksen H., and Joseph Murray. 2014. *Deaf Gain: Raising the stakes for human diversity*. Minneapolis: Univ. of Minnesota Press.

Being deaf is viewed as a way of being human with inherent advantageous characteristics that become contributions to the society at large. This highlights unique skills of deaf individuals in areas of spatial recognition, peripheral processing, and image detection, which are viewed as vital parts of human diversity.

- Ladd, Paddy. 2003. *Understanding deaf culture: In search of Deafhood*. Clevedon, UK: Multilingual Matters.

  This book is a guide to Deaf culture and its contributions to our society. The author coined the term "Deafhood" to describe a process through which every deaf child and deaf adult can examine their journey through the world. The author analyzes minority cultures and multilingual discourses and draws parallels between those and Deaf culture.

- Lane, Harlan. 2005. Ethnicity, ethics, and the Deaf-World. *Journal of Deaf Studies and Deaf Education* 10.3: 291–310.

  The article discusses ethical aspects of language minorities and the impact that society has on the signed languages of Deaf communities when perceived as a disability group. Educational and linguistic rights of the Deaf community are examined by the author.

- Lane, Harlan, Robert Hoffmeister, and Benjamin Bahan. 1996. *A journey into the Deaf-World*. San Diego, CA: DawnSignPress.

  This book provides an overview of the Deaf-World, including education, social and cultural values, technology advancements, and ASL. It also addresses deaf societies in other countries. The audience for this book is professionals working with or aiming to work with deaf people.

- Padden, Carol, and Tom Humphries. 1988. *Deaf in America: Voices from a culture*. Cambridge, MA: Harvard Univ. Press.

  An insider's perspective on Deaf culture and language in America, written by deaf authors who examine signed language's rich cultural heritage and how it provides a distinctive perspective on the world. The book is for those who are interested in learning more about Deaf culture.

- Padden, Carol, and Tom Humphries. 2005. *Inside deaf culture*. Cambridge, MA: Harvard Univ. Press.

  The book discusses historical events that have impacted Deaf culture, the near-dissolution of ASL, and the experiences of a minority culture thriving in certain pockets of society. Controversial technologies challenging the existence of Deaf culture are also discussed.

The Bilingual Perspective

The Deaf-World is complex, often divided by allegiance to either the Deaf community or the hearing community. This divide is often based on the individual's communication preference(s). The cultural perspective emphasizes signed language use as the primary means of communication, while the hearing perspective emphasizes spoken language as the primary means of communication. As a result of improved hearing technologies, there is a growing group of deaf individuals who are able to use both languages (ASL and English) bimodally and are members in both worlds, rather than choosing one over the other. Being a bimodal bilingual means they associate with and claim membership in both communities. Factors influencing cultural association and identity formation include when an individual became deaf, the hearing status of their parents, the educational setting they attended, and their social experiences. Jones 2002 presents a neutral perspective on the evolution of disability into cultural identity. Grosjean 2008 argues that establishing a cultural identity is a crucial developmental process for deaf children. The opportunity to do so is typically missing from programs that do not see the child as a member of two communities. Most, et al. 2007 asserts that bicultural identity is also correlated with positive attitudes about the use of cochlear implants, reflecting the bicultural individual's ability to navigate aspects of both the Deaf and hearing worlds. This is also supported by the examination of deaf and hard-of-hearing individuals' cultural identities (deaf, hearing, or both) in Bat-Chava 1994, which finds that those who have dual identities typically have positive attitudes about being deaf.

- Bat-Chava, Yael. 1994. Group identification and self-esteem of deaf adults. *Personality & Social Psychology Bulletin* 20.5: 494–502.

  In this study, deaf individuals who grew up in environments that included other deaf people at home and at school, along with sign language, developed greater sense of group identification and had higher self-esteem. Their identity and self-esteem equipped them to handle experiences outside the Deaf-World.

- Grosjean, Francois. 2008. *Studying bilinguals*. New York: Oxford Univ. Press.

  Bicultural individuals participate in two or more cultures at varying degrees, and they blend cultural elements from both cultures. Establishing a cultural identity is a crucial developmental process for children and adolescents. This book covers the definition and characterization of the bilingual person, and the sign-oral bilingualism of the deaf.

- Jones, Megan. 2002. Deafness as culture: A psychosocial perspective. *Disability Studies Quarterly* 22.2: 51–60.

  A neutral perspective on the dichotomy between disability versus culture identity. Using psychosocial theories, the author explores the process of transformation from stigma to identity and identified the elements (stigma, language, and prejudice) in the formation of the Deaf as a minority group.

- Most, Tova, Amatzia Wiesel, and Tamar Blitzer. 2007. Identity and attitudes towards cochlear implants among deaf and hard-of-hearing adolescents. *Deafness & Education International* 9.2: 68–92.

This study examined the relationship between identity orientations and attitudes toward cochlear implants. The majority of the deaf adolescents expressed strong bicultural identities, which correlated with positive attitudes toward the advantages of cochlear implants. A strong Deaf identity correlated with less-positive views of cochlear implants.

The Culturally Hearing Perspective

This section addresses audiologically deaf and hard-of-hearing individuals who do not share the values of the Deaf community or its culture due to a lack of opportunities to participate in the Deaf community or of interest in associating with this group. There is little research on the identity of this particular group; many of its members grew up in inclusive settings and have associated only with hearing individuals. Instead, as exemplified by Kemmery and Compton 2014, research has focused on factors that influence self-perception based on interactions with others, school settings, and life experiences. Reisler 2002 shares the experiences of deaf individuals who grew up oral to showcase their ability, but also their struggles to be fully integrated in the hearing world. Israelite, et al. 2002 suggests that a hard-of-hearing identity may exist separately from the culturally Deaf identity.

- Israelite, Neita, Janet Ower, and Gayle Goldstein. 2002. Hard-of-hearing adolescents and identity construction: Influences of school experiences, peers, and teachers. *Journal of Deaf Studies and Deaf Education* 7.2: 134–148.

  Supports the position that a hard-of-hearing identity may exist separate from the culturally Deaf identity. Also suggests that hard-of-hearing students need to connect with other hard-of-hearing individuals, regardless of whether they assimilate into the hearing world or decide to participate in both the hearing and Deaf worlds.

- Kemmery, Megan, and Mary Compton. 2014. Are you deaf or hard of hearing? Which do you go by: Perceptions of identity in families of students with hearing loss. *The Volta Review* 114.2: 157–192.

  Findings bridge the gap in how four mainstreamed deaf and hard-of-hearing students perceive and identify themselves in their world, and the results discuss their self-determined identity type, fluidity in both worlds, and management and resiliency of coping with their deafness. Their caregivers' perspectives were included in this study.

- Reisler, Jim. 2002. *Voices of the oral deaf: Fourteen role models speak out*. Jefferson, NC: McFarland.

  This book presents interviews with fourteen oral deaf role models from diverse backgrounds and professions in sharing experiences, discussing what helped and hindered them and offering advice to parents of deaf children who want to fit into the mainstream society better by choosing oralism.

Laws and Related Documents

A variety of laws were designed to ensure equality in the treatment of deaf and hard-of-hearing people in the United States. Communication barriers, for example, are being addressed to meet the unique linguistic needs of individuals that rely on a visual language, and more opportunities are available in education and the community at large. Laws and related documents that are pertinent to the education of deaf and hard-of-hearing students fall into distinct categories. The Bill of Rights for Deaf and Hard of Hearing Children and the least restrictive environment (LRE) principle address the communication and language needs of deaf and hard-of-hearing children in educational settings. Laws pertaining to early hearing intervention and rights of deaf and hard-of-hearing infants, toddlers, and young children include Early Hearing Detection and Intervention (EHDI), Reauthorization of EHDI, and Individuals with Disabilities Education Act (IDEA), Part C. All of them discuss the importance of family involvement and including early intervention services through an individualized family service plan (IFSP). Special education and its provisions for deaf and hard-of-hearing students are part of the IDEA, IDEA Part B, Section 504, and the Americans with Disabilities Act (ADA): Obligations of Public Schools. Each document outlines the rights deaf and hard-of-hearing students have to obtain free and appropriate education from entities that offer educational services to meet students' needs in their individualized education plan (IEP).

- Americans with Disabilities Act (ADA), Public Law 101-336, U.S. Code 42 (1990) § 12101 et seq.

  Prohibits exclusion of persons with disabilities from private employers and commercial entities. It extends access to public education and preparation of persons with disabilities.

- Early Hearing Detection and Intervention (EHDI), Public Law 112-123, U.S. Code 42 (2012) § 280g-1.

  This bill requires all newborn infants to undergo hearing screening in each state to determine if they are hearing, hard-of-hearing, or deaf. The screening indicates whether it is necessary to provide further intervention services based on the infant's hearing levels.

- Individuals with Disabilities Education Act (IDEA), Public Law 101-476, U.S. Code 20 (1990) § 1401 et seq.

  IDEA requires public school systems to provide a "free, appropriate public education" to children who need special education or related services because of a disability. IDEA establishes a procedure for developing an IEP and identifying needed support services for individual children.

- Individuals with Disabilities Education Act (IDEA), Part B, Preschool through Age 21 Individuals with Disabilities Education Act, Public Law 101-476, U.S. Code 20 (1990) § 1401 et seq. § 611–619.

  Children with disabilities who receive services under Part B of the IDEA are eligible for special education and related services from ages three to twenty-one or until their

graduation from high school. The goals are identified and documented by the IEP team. IDEA, Part C, Early Intervention.

- Individuals with Disabilities Education Act, Public Law 101-476, U.S. Code 20 (1990) § 1401 et seq. IDEA Regulations, 34 CFR §§303.342–303.345.

  This section addresses the need for early intervention services for infant and toddler's physical, cognitive, communication, social-emotional, and adaptive development. This information is documented in an IFSP that must include parents' and professionals' perspectives.

- Least Restrictive Environment (LRE), Individuals with Disabilities Education Act, Public Law 101-476, U.S. Code 20 (2004) § 1412. IDEA Regulations, 34 C.F.R. § 300.550–300.554.

  The LRE refers to the educational setting that should be selected to best meet the child's language, communication, and academic needs. A school district must make available a complete continuum of alternative placements.

- [Bill of Rights for Deaf and Hard of Hearing Children](). National Association of the Deaf.

  NAD outlined the components of the "Bill of Rights for Deaf and Hard of Hearing Children," which is a specific state law that recognizes the communication and language needs of deaf and hard-of-hearing children and offers direct links to states that have passed the bill.

- Rehabilitation Act of 1973, Section 504, 29 U.S. Code. § 794[a].

  Prohibits excluding or discriminating against individuals with disabilities from participating in activities offered by any entity receiving federal funding. This extends to schools offering afterschool and summer programs as well as meetings and other school events.

Educational Placement Options

The educational placements for deaf and hard-of-hearing students primarily fall under three categories: special schools, mainstreaming, and inclusion. Special schools refer to schools for the deaf, which can be residential or day schools. In the United States, the majority of these schools use sign communication as the medium of instruction. Mainstreamed placements include resource rooms and self-contained classes housed within public schools. Students spend portions of their day mainstreamed into general education classes whether at public, private, or charter schools. Inclusion refers to general education settings where typically only one deaf or hard-of-hearing student is placed in a class with hearing students. Support services within any of these settings may include one or several of the following: speech and hearing services, tutoring, interpreters and transliterators, therapists, and itinerant support from a deaf education teacher. A fourth type of placement, termed co-enrollment, has been proposed as an alternative to

mainstreaming and inclusion both in the United States and in other countries (Antia and Metz 2014, Yiu and Tang 2014). Co-enrollment is said to provide access to a bimodal bilingual environment where children who are deaf and hard-of-hearing and their hearing peers have equal access to language, academic, and social development (Antia and Metz 2014). The movement toward inclusion has increased the number of deaf and hard-of-hearing students educated in general education classrooms, leading researchers both in the United States and in other countries to examine the experiences of students in each type of placement in relation to academic achievement, access to communication and support, and socialization. Antia, et al. 2009 reported on the positive academic achievement of students in mainstream settings. Angelides and Aravi 2006 reported on the differences in communication and marginalization based on placement type. Ramsey 1997 correlates issues of access for students in mainstreamed settings with lack of attention to students' individual needs. Access to education and social interaction for many of these students depends on the quality of educational interpreters. Schick, et al. 2005 reported that as many as 60 percent of the educational interpreters may be rendering classroom content incomprehensible for students due to the interpreters' inadequate skills. Students classified as hard-of-hearing are said to be most at risk when teachers do not understand the relation between hearing levels and comprehension of spoken language (Davis 2001). In examining the consequence of educational placements, the students' personal characteristics have been linked to the academic and social benefits they derive from them (Stinson and Kluwin 2011). Others have examined factors within schools that facilitate and/or prevent inclusion of orally educated children (Eriks-Brophy, et al. 2006). Finally, Luckner and Ayantoye 2013 discussed how the knowledge, skills, and availability of itinerant teachers who work directly with students in mainstream settings are important contributors to their success.

- Angelides, Panayiotis, and Christiana A. Aravi. 2006. A comparative perspective on the experiences of deaf and hard-of-hearing students at mainstream and special schools. *American Annals of the Deaf* 151.5: 476–487.

  A study conducted in Cyprus that mirrors mid-eighties studies in the United States regarding the academic performance, social interaction, and levels of marginalization encountered in each setting. The comparison points to better quality of education at mainstream schools but less communication and higher alienation. Authors argue both settings can lead to marginalization.

- Antia, Shirin D., Patricia B. Jones, Susanne Reed, and Kathryn H. Kreimeyer. 2009. Academic status and progress of deaf and hard-of-hearing students in general education classrooms. *Journal of Deaf Studies and Deaf Education* 14.3: 293–311.

  Reports that students in general education classrooms performed in the range from average to above average on standardized measures of math, reading, and language/writing but over time remained within half a standard deviation of hearing norms. The authors explore variables that may contribute to the latter research finding.

- Antia, Shirin D., and Kelly K. Metz. 2014. Co-enrollment in the United States: A critical analysis of benefits and challenges. In *Bilingualism and bilingual deaf education*. Edited by M. Marschark, G. Tang, and H. Knoors, 424–443. New York: Oxford Univ. Press.

This chapter first describes the history, philosophy, and characteristics of co-enrollment programs in the United States; then it turns its attention to the results of studies, which have reported primarily positive social, academic, and linguistic outcomes for students who are deaf and hard-of-hearing. The benefits and challenges for teachers, parents, and administrators are also discussed.

- Davis, J., ed. 2001. *Our forgotten children: Hard of hearing pupils in the schools*. 3d ed. Bethesda, MD: Self Help for Hard of Hearing People.

  Brings attention to the education of children who are hard-of-hearing and placed in the general education setting. Considers the impact of early intervention, medical aspects of hearing loss, classroom acoustics, cochlear implants, and federal regulations including the Individuals with Disabilities Education Act (IDEA).

- Eriks-Brophy, Alice, Andree Durieux-Smith, Janet Olds, Elizabeth Fitzpatrick, Cheryll Duquette, and JoAnn Whittingham. 2006. Facilitators and barriers to the inclusion of orally educated children and youth with hearing loss in schools: Promoting partnership to support inclusion. *The Volta Review* 106.1: 53–88.

  A qualitative study with orally educated students, their parents, and teachers that identified the positive qualities in teachers, administrators, parents, hearing peers, and the students themselves as the core factors that facilitate inclusion. Unlike other studies, all participants reported that inclusion was a positive and beneficial experience.

- Luckner, John L., and Catherine Ayantoye. 2013. Itinerant teachers of students who are deaf or hard of hearing: Practices and preparation. *Journal of Deaf Studies Deaf Education* 18.3: 409–423.

  A study of itinerant teachers who provide services to deaf and hard-of-hearing students in a variety of mainstreamed settings, aiming to describe their preparation, practices, and services provided, along with the characteristics of the students they serve.

- Ramsey, Claire L. 1997. *Deaf children in public schools: Placement, context, and consequences*. Vol. 3. Washington, DC: Gallaudet Univ. Press.

  This book gives insight into deaf children's learning contexts and educational placements, which are not necessarily the same. It contrasts the difference between mainstreaming and self-contained classrooms, calling attention to the relationship between social interaction, language development, and educational success.

- Schick, Brenda, Kevin Williams, and Haggai Kupermintz. 2005. Look who's being left behind: Educational interpreters and access to education for deaf and hard-of-hearing students. *Journal of Deaf Studies and Deaf Education* 11.1: 3–20.

  Evaluated the skills of 2100 educational interpreters across the United States working in k-12 settings with deaf and hard-of-hearing students and found that approximately 60

percent did not possess the necessary skills to provide students with accurate access to content, thus contributing to the academic delays students already experience.

- Stinson, Michael, and Thomas Kluwin. 2011. Educational consequences of alternative school placements. In *The Oxford handbook of deaf studies, language, and education*. 2d ed. Vol. 1. Edited by Marc Marschark and Patricia Spencer. Oxford and New York: Oxford Univ. Press.

  Examines the consequences of alternative placements available for deaf and hard-of-hearing students as they relate to academic achievement and personal and social experiences. The authors conclude that academic achievement is easier to quantify than personal characteristics given the individual differences among students.

- Yiu, Chris K., and Gladys Tang. 2014. Social integration of deaf and hard-of-hearing students in a sign bilingual and co-enrollment environment. In *Bilingualism and bilingual deaf education*. Edited by M. Marschark, G. Tang, and H. Knoors, 342–367. New York: Oxford Univ. Press.

  The authors studied the social integration of a group of deaf and hard-of-hearing students attending a co-enrollment program in Hong Kong. Measures of social integration included peer ratings, hearing students' attitudes toward deaf and hard-of-hearing students, and deaf and hard-of-hearing students' attitudes toward their own deafness. Results indicated positive acceptance between groups. Deaf and hard-of-hearing students with positive views of themselves received increased positive ratings from hearing peers.

Educational Approaches

This section explores the three prevailing educational approaches used to educate deaf and hard-of-hearing students. Educational approaches are classified based on the language or languages and communication method selected to provide access to academic content. Oral education provides all instruction and interactions in the spoken language of the country where it is used. Bilingual education provides instruction and interactions in the natural signed language of the Deaf community and the spoken/written form of the country where it is used. Total Communication provides instruction via simultaneous use of the spoken language of the country where it used and a sign system created to emulate the syntactic and semantic structure of the spoken language. Each approach has different goals, and these are explained below.

Oral Education

Oral education is also known as the oral method, auditory-oral, auditory-verbal, and most recently the listening and spoken language approach. Oral education is based on the principle that children who are deaf or hard-of-hearing can develop listening and speaking language skills that will support literacy development commensurate with that of hearing children when appropriate early intervention services, hearing technology, and consistent training are provided. Students attend general education placements in either full inclusion or mainstreamed settings as early as possible (see Educational Placement Options). Beattie 2006 describes oral education's

emphasis on the use of hearing technologies, such as hearing aids and cochlear implants to augment a child's auditory access, accompanied by speech and language therapy which focuses on a range of speech skills and speech reading/lip reading. Of the oral methods, auditory-verbal therapy has received increased attention in recent years. According to Estabrooks 2012, auditory-verbal therapy promotes early diagnosis and intervention, primarily focuses on development of auditory skills, does not incorporate speech reading or sign language, and it is done in one-on-one settings by properly certified professionals. Eriks-Brophy, et al. 2012 reports the positive outcomes in communication, academic, and social skills achieved by adolescents who experienced auditory-verbal therapy even though they had not benefited from early identification or used advanced hearing technologies. Newborn hearing screening, which allows early identification of infants with varying hearing levels, has led to an increase in the number of children who receive a cochlear implant at an early age and are educated orally. Niparko, et al. 2010, a longitudinal study, reports that significant improvements in receptive and expressive oral language are associated with implantation prior to eighteen months of age. The improved access combined with oral education is expected to narrow the reading difficulties experienced by deaf and hard-of-hearing children (see Literacy Development). However, reading outcomes for most long-term users of cochlear implants have not been reported to match hearing norms (Geers, et al. 2008). Brennan-Jones, et al. 2014 reports that the current evidence may not be sufficient to conclude that auditory-verbal therapy is an effective intervention that allows deaf and hard-of-hearing children with permanent hearing loss to develop spoken language skills. However, Archbold and Mayer 2012 cautions that given the growing heterogeneity of this group, professionals must renew their attention to their unique educational needs. These changing needs have also brought attention to the professional preparation required of practitioners in all areas of oral education (Houston and Perigoe 2010).

- Archbold, Sue, and Connie Mayer. 2012. Deaf education: The impact of cochlear implantation? *Deafness & Education International* 14.1: 2–15.

  Review of the impact of cochlear implants on educational decisions, including educational placement, communication mode, and educational attainment. Authors argue that changes that are taking place due to children with cochlear implants need to be noted and educational practices need to adapt to support the individual learner.

- Beattie, Rod G. 2006. The oral methods and spoken language acquisition. In *Advances in the spoken language development of deaf and hard-of-hearing children*. Edited by Patricia E. Spencer and Marc Marschark, 103–135. New York: Oxford Univ. Press.

  Describes the history of the oral method and the continuum of services that fall under it. Addresses and clarifies the many names by which this method has been known. Reviews the research on the effectiveness of the oral method for receptive and expressive language development, concluding that the overall results from past and current studies vary widely from very encouraging outcomes to more modest gains.

- Brennan-Jones, Christopher G., Joe White, Robert W. Rush, and James Law. 2014. Auditory-verbal therapy for promoting spoken language development in children with

permanent hearing impairments. *Cochrane Database of Systematic Reviews* 3, art. no. CD010100.

A systematic review sought evidence on the effectiveness of auditory-verbal therapy as an intervention that develops spoken language skills but yielded no suitable studies for review. The lack of well-controlled studies prevented a conclusion regarding effectiveness, but this needs not imply a lack of impact by this method.

- Eriks-Brophy, Alice, Andree Durieux-Smith, Janet Olds, Elizabeth M. Fitzpatrick, Cheryll Duquette, and JoAnn Whittingham. 2012. Communication, academic, and social skills of young adults with hearing loss. *The Volta Review* 112.1: 5–35.

The study reports that adolescents who attended listening and spoken language programs in early childhood and continued to receive support services in mainstreamed schools performed at average or above-average levels on measures of communication, academic achievement, and self-perception compared to their hearing peers.

- Estabrooks, Warren, ed. 2012. *101 frequently asked questions about auditory-verbal practice: Promoting listening and spoken language for children who are deaf and hard of hearing and their families*. Washington, DC: AG Bell.

Written for professionals and parents by experts in the field. Provides up-to-date information and responds to commonly asked questions about auditory-verbal practices including techniques, strategies, and storytelling. Contemporary issues and current trends in the field are discussed alongside the theory, principles, and outcomes of this evidence-based practice. Print and e-book available.

- Geers, Ann, Emily Tobey, Jean Moog, and Chris Brenner. 2008. Long-term outcomes of cochlear implantation in the preschool years: From elementary grades to high school. *International Journal of Audiology* 47 Suppl. 2: 21–30.

Reports on the performance of adolescents who were among the first group of school-aged children to receive a cochlear implant to determine the impact long-term use has on language and reading measures. Concludes that the majority of the students demonstrated improvements but did not reach age-appropriate levels specifically in reading.

- Houston, K. Todd, and Christina B. Perigoe, eds. 2010. *Special issue: Professional preparation of listening and spoken language practitioners*. *The Volta Review* 110.2.

This monograph addresses issues related to the knowledge, skills, and experience that audiologists, speech pathologists, and teachers must possess in order to positively affect the spoken language outcomes of the children they serve. It argues that there is a great need for professionals in these fields who possess proper training and certification.

- Niparko, John K., Emily A. Tobey, Donna J. Thal, et al. 2010. Spoken language development in children following cochlear implantation. *Journal of the American Medical Association* 303.15: 1498–1506.

  Longitudinal study on the receptive and expressive language abilities of profoundly deaf children with cochlear implants. Greater improvements on spoken language measures and speech recognition, which were closer to hearing norms over a three-year period, were noted for the children who were implanted before eighteen months of age.

Bilingual Deaf Education

Bilingual deaf education is based on the same premises as spoken language bilingual education and adheres to the principles of additive bilingualism, which aims to support, develop, and maintain the child's first language as they develop a second language, explains Baker 2011. The development of two natural languages, in this case one spoken and one signed, is supported by the interdependence hypothesis, which postulates that proficiency in one language promotes proficiency in the other. American Sign Language (ASL) serves to develop age-appropriate language and cognition and provides the foundation for the simultaneous or sequential development of spoken/written skills in the majority language. Cummins 2006 reviewed the evidence on the relationship between ASL and English proficiency, concluding that it supports the viability and benefits of bilingual education for deaf children regardless of the auditory access they may receive from hearing technologies. The framework for bilingual deaf education expects students to achieve social and academic proficiencies as well as signacy, literacy, and oracy skills in the two languages of their environment (Gárate 2014). To achieve this goal, educators must be knowledgeable about bilingual methodologies and purposeful in their selection of instructional strategies that lead to planned language allocation (Gárate 2012). The implementation of bilingual deaf education in the United States and around the world varies, as do reports on its effectiveness in helping deaf and hard-of-hearing children achieve age-appropriate language and literacy skills. Dammeyer 2014, for example, reports that 45 percent of the students educated in bilingual programs demonstrate age-appropriate literacy skills, a notable difference from the typically reported 10 percent of the overall deaf and hard-of-hearing school-aged population. However, Mayer and Leigh 2010 questions the model and its current relevance to the growing population of children who have cochlear implants and acquire a spoken language as their first language, suggesting that simultaneous communication (see Total Communication) may be a better choice for this population. Gárate 2011 argues that children with a cochlear implant can be educated in a bilingual environment at no cost to their spoken language development. Humphries, et al. 2014 calls for a more systematic implementation of bilingual education to address the current situation created when children with cochlear implants do not achieve age-appropriate spoken language development. Having missed the window for natural language acquisition (see Language Acquisition), these children continue to lag behind in their literacy development (see Literacy Development) due to early language deprivation.

- Baker, Colin. 2011. *Foundations of bilingual education and bilingualism*. 5th ed. Clevedon, UK: Multilingual Matters.

Chapter 16 describes the similarities between deaf and hearing bilinguals, which include being a disadvantaged language minority group. It reviews the experiences of deaf children in programs that aim for monolingualism and concludes with a list of suggestions for how bilingual deaf education can and does mirror general bilingual education.

- Cummins, James. 2006. *The relationship between American Sign Language proficiency and English academic development: A review of the research*. Report prepared for the Ontario Association of the Deaf.

  Concludes that access and development of a signed language as a first language provides the necessary foundation for the academic development of a spoken or written second language, as evidenced by the relationship in levels of achievement between the two. Discusses policy considerations and recommendations for bilingual deaf education.

- Dammeyer, Jesper. 2014. Literacy skills among deaf and hard of hearing students and students with cochlear implants in bilingual/bicultural education. *Deafness & Education International* 16.2: 108–119.

  The study aimed to evaluate the literacy skills of a group of 331 deaf and hard-of-hearing students with and without cochlear implants from six different bilingual schools in Denmark to evaluate the factors that may explain their literacy skills. The results indicated that when sign language skills and aural-oral abilities were high, risks of literacy delays decreased. Bilingual education appears to have improved the literacy levels of about half of the students with and without cochlear implants.

- Gárate, Maribel. 2011. Educating children with cochlear implants in an ASL/English bilingual classroom. In *Cochlear implants: Evolving perspectives*. Edited by Raylene Paludneviciene and Irene W. Leigh, 206–228. Washington, DC: Gallaudet Univ. Press.

  This chapter reviews research related to deaf bilingual children with cochlear implants acquiring both ASL and English to focus on bilingual instructional methodologies that can be implemented in schools to promote affective, cognitive, and academic advantages in simultaneous bilinguals. Reprinted in German (Gárate, M. 2012. *Beschulung cochlea-implantierter kinder in einer ASL/Englisch-bilingualen umgebung. Das Zeichen: Zeitschrift für Sprache und Kultur Gehörloser* 9:348–363).

- Gárate, Maribel. 2012. *ASL/English bilingual education: Models, method and strategies*. Research Brief No. 8. Washington, DC: Visual Language and Visual Learning Science of Learning Center.

  Defines the aims and benefits of ASL/English bilingual education and the bilingual model applicable to deaf learners. Reviews methodologies and instructional strategies that have been documented in the literature to highlight their importance in planning bilingual instruction. This review is written for parents and teachers.

- Gárate, Maribel. 2014. Developing bilingual literacy in deaf children. In *Mainoritei no shakaisanka: Shogaisha to tayona riterashi*. Edited by Michiko Sasaki, 180–196. Tokyo: Kurosio.

  Elaborates on each of the elements of the ASL/English bilingual framework: signacy, literacy, and oracy, aimed at achieving bilingual literacy. Frames students' progress toward fluency in each area in reference to the social and academic functions each language serves within a bilingual program. Includes examples for classroom application. (Book title translation: Literacies of the minorities: Constructing a truly inclusive society.)

- Humphries, Tom, Poorna Kushalnagar, Gaurav Mathur, et al. 2014. Bilingualism: A pearl to overcome certain perils of cochlear implants. *Journal of Medical Speech-Language Pathology* 21.2: 107–125.

  Positions bimodal bilingualism as both a preventive measure for and a solution to the risks associated with educating deaf children with cochlear implants exclusively in a listening and spoken language environment. Calls for a systematic approach based on collaboration among professionals and families to prevent the consequences of language deprivation.

- Mayer, Connie, and Greg Leigh. 2010. The changing context for sign bilingual education programs: Issues in language and the development of literacy. *International Journal of Bilingual Education and Bilingualism* 13.2: 175–186.

  A timely discussion about the impact that cochlear implantation is having on deaf students' characteristics and school placement. Elaborates on the challenges that sign bilingual education has to overcome to be a relevant option for this population. Suggests that simultaneous use of signs and spoken language may be a better approach.

Total Communication

Total Communication was initially conceptualized in the 1970s as a philosophy that promoted the use of various methods of communication including manual, oral, and written modalities so that educators could meet the individual needs of the students and students could choose the modality that worked best for them. Total Communication gained support because of the dissatisfaction with the achievement levels of deaf students resulting from oral education. It was also the first approach to (re)incorporate signs into instruction, becoming the most widespread educational approach for more than three decades. In practice, Total Communication became synonymous with the simultaneous use of a spoken language and an invented sign system, a practice known as simultaneous communication, SimCom, or sign-supported speech. The sign systems also known as Manually Coded English adopted some signs from ASL and created other signs to conform with and represent English syntax and morphology. Studies at the time were interested in whether Total Communication was making a difference in the educational outcomes of children who had previously attended oral programs. Delaney, et al. 1984 is one of the few longitudinal studies on the performance of students in Total Communication at a previously oral

school. Others explored the viability that sign systems had to represent English grammar in particular and to provide sufficient access that leads to English acquisition (Kluwin 1981, Strong and Charlson 1987). Steward 1992 summarized the major concerns with the approach, calling for a change that should include improved preparation of teachers for the deaf. In spite of years of criticism, Total Communication continues to be widely used in both mainstreamed settings and in some special schools (see Educational Placement Options). Since the turn of the 21st century, interest in studying the effects of sign-supported speech, also known as simultaneous communication, which is typically present in Total Communication settings, resurged when more children with cochlear implants were placed in mainstreamed settings where this educational approach continues to prevail (Giezen, et al. 2014). Rather than focusing on the quality of the sign production as past studies did, researchers are now focused on the quantity and quality of the spoken language produced by teachers and on the potential impact that Total Communication classrooms may have on children's spoken language development (Giezen, et al. 2014). Reports on comparative studies vary widely from those that find superior performance in children from oral programs, those finding superior overall language performance in children from Total Communication programs, and those that find no significant difference between the two (Connor, et al. 2000; Jiménez, et al. 2009; Spencer and Tomblin 2006).

- Connor, Carol M., Sara Hieber, H. Alexander Arts, and Teresa A. Zwolan. 2000. Speech, vocabulary, and the education of children using cochlear implants: Oral or Total Communication? *Journal of Speech, Language, and Hearing Research* 43.5: 1185–1204.

  Compared the impact that two educational approaches had on measures of speech production and vocabulary development on children with cochlear implants. Reported that both groups experienced positive rates of improvement with no significant differences across several measures, but children in Total Communication had larger vocabulary when implanted before age five.

- Delaney, Mary, Ross Stuckless, and Gerard G. Walter. 1984. Total communication effects: A longitudinal study of a school for the deaf in transition. *American Annals of the Deaf* 129.6: 481–486.

  One of the few longitudinal studies evaluating the effects of Total Communication on students' academic achievement levels and communication skills at a school that transitioned from oral education to Total Communication. Reported greater achievement levels and better communication skills in the Total Communication students but not commensurate with hearing norms.

- Giezen, Marcel R., Anne E. Baker, and Paola Escudero. 2014. Relationships between spoken word and sign processing in children with cochlear implants. *Journal of Deaf Studies and Deaf Education* 19.1: 107–125.

  This article reports on the results of two studies where children with cochlear implants were exposed to sign in addition to spoken language (simultaneous communication). The first study assessed sign and word learning; the second study assessed the impact of

simultaneous communication on spoken word processing. Taken together, results indicated that the use of sign did not have a negative impact on speech processing.

- Jiménez, M. S., M. J. Pino, and J. Herruzo. 2009. A comparative study of speech development between deaf children with cochlear implants who have been educated with spoken or spoken+sign language. *International Journal of Pediatric Otorhinolaryngology* 73:109–114.

  The results of the study showed that both groups developed speech abilities. The children in spoken-only settings had better speech intelligibility, auditory reception, and grammatical closure, while the children in the sign-plus-spoken settings had better verbal fluency and knowledge of more words.

- Kluwin, Thomas. 1981. The grammaticality of manual representations of English in classroom settings. *American Annals of the Deaf* 126:417–421.

  Analyzed the ability of teachers to produce grammatical representations of English using simultaneous communication in their classrooms. Reported that years of experience was an explanatory variable for more accurate production but found that in general the sign output could not serve as a model for the acquisition of English.

- Spencer, Linda J., and J. Bruce Tomblin. 2006. Speech production and spoken language development in children using "Total Communication." In *Advances in the spoken language development of deaf and hard-of-hearing children*. Edited by Patricia E. Spencer and Marc Marschark, 103–135. New York: Oxford Univ. Press.

  This chapter is a starting point to understand the social and educational reasons that led to the implementation of Total Communication in and outside the United States, including its criticism. Reviews studies pertaining to students' performance in and achievement of spoken language development.

- Steward, David A. 1992. Initiating reform in total communication programs. *The Journal of Special Education* 26.1: 68–84.

  After twenty years of Total Communication, the author examines the sparse research evidence on the subject, providing a clear review of the inconsistencies of its implementation and calling for accountability primarily from teacher preparation programs. It outlines a research agenda to investigate the effects of signed systems on students' education.

- Strong, M., and Elizabeth S. Charlson. 1987. Simultaneous communication: Are teachers attempting an impossible task? *American Annals of the Deaf* 132.5: 376–382.

  Analyzed teachers' narratives during simultaneous communication to determine whether their combined output could appropriately represent spoken English in sign. Results

supported similar studies stating that the output is fraught with inconsistencies which interfere with the students' ability to infer the patterns in a natural language.

Language Acquisition

This section provides resources for parents and educators of deaf and hard-of-hearing children wanting to understand the central issues related to language acquisition. All children are born ready to acquire and use a language. For that to happen, the language has to be accessible to the child. Like all other children, deaf and hard-of-hearing children have a critical need for early exposure to accessible language, but this access is far too often unrealized. For more than 200 years the controversy regarding language acquisition has revolved around which language deaf children should be exposed to: spoken, signed, or both. Though research has stated otherwise, some professionals still caution parents that exposure to a signed language hinders spoken language development. The resources provided below delineate language development in sign-text and sign-spoken bilingual cases, as well as in spoken monolingual development.

Spoken Language and Monolingual Development

The newborn hearing screening allows infants with varying hearing levels to be identified earlier than ever before. This combined with advancements in hearing technologies, such as digital hearing aids and cochlear implants, has resulted in a larger group of deaf and hard-of-hearing children than in the past accessing spoken language (Spencer and Marschark 2005). Age of implantation has also been significantly reduced, with children as young as twelve months being implanted. The possibility of naturally acquiring a spoken language has become a reality for some profoundly deaf children (Quittner, et al. 2013; Ruggirello and Mayer 2010). Most families who choose a listening and spoken language approach for their deaf or hard-of-hearing child do not chose to expose their child to a signed language, with the exception of a few signs used to support the spoken language. Some families choose visual support systems such as cued speech (LaSasso, et al. 2010). Children who receive access to spoken language earlier are more likely to develop spoken language fluency similar to their hearing peers (Bergeson-Dana 2012, Cole and Flexer 2015). However, Inscoe, et al. 2009 cautions professionals and families of young deaf and hard-of-hearing children who are developing listening and speaking skills that they may still lag behind their typical hearing peers. When families feel supported and have the ability to self-advocate, children tend to have better language skills (DesJardin 2006). The resources in this section are particularly helpful for parents and early childhood educators working with oral deaf and hard-of-hearing children.

- Bergeson-Dana, Tonya R. 2012. Spoken language development in infants who are deaf or hard of hearing: The role of maternal infant-directed speech. *The Volta Review* 112.2: 171.

  Some deaf and hard-of-hearing children with cochlear implants or hearing aid amplification acquire better spoken language skills than others. One predictor of spoken language success is mother-directed speech. This article is informative for parents and professionals working with deaf and hard-of-hearing infants on spoken language development.

- Cole, Elizabeth B., and Carol A. Flexer. 2015. *Children with hearing loss: Developing listening and talking, birth to six*. 3d ed. San Diego, CA: Plural.

  This is a resource for graduate students and professionals working with young deaf and hard-of-hearing children. It addresses how early identification and technology advancements are impacting development of oral language in deaf and hard-of-hearing children.

- DesJardin, Jean L. 2006. Family empowerment: Supporting language development in young children who are deaf or hard of hearing. *Volta Review* 106.3: 275–298.

  Parents' sense of support, self-advocacy, and competence in helping their child allow deaf and hard-of-hearing children to develop better language skills. This is a good resource for parents and early education centers that work with families with young deaf and hard-of-hearing children.

- Inscoe, Jayne Ramirez, Amanda Odell, Susan Archbold, and Thomas Nikolopoulos. 2009. Expressive spoken language development in deaf children with cochlear implants who are beginning formal education. *Deafness and Education International* 11.1: 39–55.

  Most children with cochlear implants, even when exposed to early language teaching, tend to be behind the development of their hearing peers when it comes to spoken language grammar. Programs that integrate deaf and hearing children need to be mindful of addressing this delay in deaf children.

- LaSasso, Carol J., Kelly L. Crain, and Jacqueline Leybaert. 2010. *Cued speech and cued language development for deaf and hard of hearing children*. San Diego, CA: Plural.

  This book explores the development of language and literacy using cued speech. It is a resource for anyone interested in understanding how cued speech impacts the development of English language skills.

- Quittner, Alexandra L., Ivette Cruz, David H. Barker, et al. 2013. Effects of maternal sensitivity and cognitive and linguistic stimulation on cochlear implant users' language development over four years. *The Journal of Pediatrics* 162.2: 343–348.

  Children who are identified early and receive cochlear implants at one year old develop language faster and better when families are providing high-level strategies and are using more word types after four years of use.

- Ruggirello, Caterina, and Connie Mayer. 2010. Language development in a hearing and a deaf twin with simultaneous bilateral cochlear implants. *Journal of Deaf Studies and Deaf Education* 15.3: 274–286.

  A case study showing that early bilateral implantation leads to age-appropriate spoken language development.

- Spencer, Patricia E., and Marc Marschark, eds. 2005. *Advances in the spoken-language development of deaf and hard-of-hearing children*. New York: Oxford Univ. Press.

  This book demonstrates how advances in technology, such as the cochlear implant, along with research on how deaf children develop language, is changing the realities of spoken language development for deaf and hard-of-hearing children.

Signed Language and Bilingual Development

The newborn hearing screening also allows parents who want to use a signed language with their deaf or hard-of-hearing children to begin early exposure. Because of its visual-spatial characteristics, a signed language is considered to be a fully accessible language option for all deaf and hard-of-hearing children (Humphries, et al. 2012). Even without exposure to formal language, deaf and hard-of-hearing children develop their own gestures that have characteristics that are consistent with the forms and functions of visual languages (Goldin-Meadow 2005). The resources in this section specifically address signed language development that leads, alongside spoken/written language, to bilingual language development. Deaf and hard-of-hearing children who acquire a signed language are bilingual when they also learn the print and/or spoken form of the majority language (Marschark, et al. 2014; Schick, et al. 2005). More than ever before, bilingualism in deaf children includes oracy, or, oral language development and use (Knoors and Marschark 2012). This provides the deaf or hard-of-hearing child with a fully accessible first language, ideally from birth (Humphries, et al. 2012; Mayberry 2007) and allows the child to develop language parallel to his hearing peers and to his fullest potential (Lederberg, et al. 2013; Reagan 2010; Spencer and Koester 2016).

- Goldin-Meadow, Susan. 2005. *The resilience of language: What gesture creation in deaf children can tell us about how all children learn language*. New York: Psychology Press.

  This book is unique in that it focuses on how deaf children who have yet to learn either sign language or oral language develop and use gestures consistent with some of the forms and functions of language.

- Humphries, Tom, Poorna Kushalnagar, Gaurav Mathur, et al. 2012. Language acquisition for deaf children: Reducing the harms of zero tolerance for the use of alternative approaches. *Harm Reduction Journal* 9.16.

  This article addresses the importance of first language development for deaf children. The authors stress that American Sign Language is the accessible language that all deaf children, regardless of future language goals (oral or bilingual) can and should possess as a first language.

- Knoors, Harry, and Marc Marschark. 2012. Language planning for the 21st century: Revisiting bilingual language policy for deaf children. *Journal of Deaf Studies and Deaf Education* 17.3: 291–305.

Language planning for young deaf and hard-of-hearing children needs to change to keep up with the shift in language access brought about by early identification and appropriate amplification.

- Lederberg, Amy R., Brenda Schick, and Patricia E. Spencer. 2013. Language and literacy development of deaf and hard-of-hearing children: Successes and challenges. *Developmental Psychology* 49.1: 15.

  Deaf and hard-of-hearing children who acquire sign language in a language-rich environment develop language similarly to how their hearing peers develop spoken language. Early detection and amplification have improved spoken language acquisition among deaf and hard-of-hearing children, but the majority are still behind compared to hearing peers.

- Marschark, Marc, Gladys Tang, and Harry Knoors, eds. 2014. *Bilingualism and bilingual deaf education*. New York: Oxford Univ. Press.

  An edited book on bilingualism in deaf children including bilingual education and signed, written, and oral language in both mainstream and deaf education settings. Chapters 2 and 3 focus specifically on bilingual language acquisition.

- Mayberry, Rachel I. 2007. When timing is everything: Age of first-language acquisition effects on second-language learning. *Applied Psycholinguistics* 28.3: 537–549.

  A summary of three experiments that demonstrate that among deaf children, the age of acquisition of the first language directly impacts the acquisition of a second language.

- Reagan, Timothy G. 2010. *Language policy and planning for sign languages*. Washington, DC: Gallaudet Univ. Press.

  This resource is informative for those who know about language planning and policy and not deafness, and those who are experts in deafness but not language planning and policy. It is an analysis of language planning and policy for educators working with signing deaf children.

- Schick, Brenda, Marc Marschark, and Patricia E. Spencer, eds. 2005. *Advances in the sign language development of deaf children*. New York: Oxford Univ. Press.

  This book compiles what is known about how deaf children learn and use sign language in a variety of settings and contexts.

- Spencer, Patricia E., and Lynne S. Koester. 2016. *Nurturing language and learning: Development of deaf and hard-of-hearing infants and toddlers*. New York: Oxford Univ. Press.

This book is a resource for families and professionals working with very young deaf and hard-of-hearing children and their families. It focuses on early development and milestones from birth to age three. It points to the need for positive support and experiences in the early years to optimize success.

Literacy Development

Literacy development among deaf children has long been a critical issue in education. It has been documented that deaf and hard-of-hearing children tend to score much lower than their hearing peers in literacy skills. Many never achieve above an elementary level of literacy skills. Learning to write a language without hearing the language adds challenges, particularly in an era where phonics-based literacy learning is the dominant approach to teaching literacy skills (Mayer 2007). With the advancement of hearing technologies, some deaf children use a phonics-based learning approach to literacy (Robertson 2013). Recent studies have pointed out that qualitative similarities between deaf students and their hearing peers do exist in the early stages of the literacy learning processes; however, a break seems to take place for deaf students during more advanced phases of early literacy development (Andrews and Wang 2015). Literacy learning is directly related to having a foundation in a first language. Deaf and hard-of-hearing children are often delayed in accessing a language (see Language Acquisition), which impacts their ability to fully develop it before they enter a school where they will be expected to begin reading and writing instruction (Scott 2011). The literature suggests that American Sign Language (ASL) can be used as the springboard to teach deaf and hard-of-hearing children literacy skills (Brueggemann 2004, Evans 2004). Schirmer 2000 describes strategies that apply across educational settings. The authors of Dostal and Wolbers 2014 focus on the simultaneous development of written English and ASL and report positive results from their approach. Mayer and Trezek 2015 reviews the research in this area and considers the diverse paths of children with different hearing levels. Trezek, et al. 2009 and Easterbrooks and Beal-Alvarez 2013 are comprehensive sources that address only instructional strategies that have been validated by research carried out with deaf and hard-of-hearing students.

- Andrews, Jean F., and Ye Wang. 2015. The Qualitative Similarity Hypothesis (QSH): Research synthesis and future directions. In *Special issue: In praise of doubt and systematic inquiry*. Edited by Peter V. Paul, Jean F. Andrews, and Ye Wang. *American Annals of the Deaf* 159.5: 468–483.

  This article is part of a special issue of the journal. It examines the qualitative similarity hypothesis of nine research teams. It addresses three research questions comparing what similarities and differences exist between the reading processes used by deaf and hearing students. The findings suggest that aspects of reading acquisition are similar. Implications for educators and policymakers are presented.

- Brueggemann, Brenda Jo, ed. 2004. *Literacy and deaf people: Cultural and contextual perspectives*. Washington, DC: Gallaudet Univ. Press.

The first four chapters of this edited book examine how deaf children develop literacy skills through the use of ASL and English. In Part 2, the last five chapters present views on multicultural and bilingual literacy instruction for deaf children.

- Dostal, Hannah M., and Kimberly A. Wolbers. 2014. Developing language and writing skills of deaf and hard of hearing students: A simultaneous approach. *Literacy Research and Instruction* 53.3: 245–268.

  This study investigated the impact of Strategic and Interactive Writing Instruction on the development of ASL and written English in deaf children. The study found that learning ASL and written English simultaneously resulted in significant gains in both writing and language development.

- Easterbrooks, Susan R., and Jennifer Beal-Alvarez. 2013. *Literacy instruction for students who are deaf and hard of hearing*. New York: Oxford Univ. Press.

  A resource for educators and parents on identifying evidence-based practices in teaching literacy to deaf and hard-of-hearing children. The authors also address the importance of assessment-based instruction.

- Evans, Charlotte J. 2004. Literacy development in deaf students: Case studies in bilingual teaching and learning. *American Annals of the Deaf* 149.1: 17–27.

  A study of how deaf children learn literacy through ASL as the primary language of instruction. Findings indicate that making the language transition conceptual leads to higher learning achievement.

- Mayer, Connie. 2007. What really matters in the early literacy development of deaf children. *Journal of Deaf Studies and Deaf Education* 12.4: 411–431.

  This article focuses on how deaf children draw apart from hearing children during early literacy development despite early identification and research supporting their developmental similarities relating to the early stages of literacy development. The article provides implications for literacy teaching and learning as well as the need for additional research.

- Mayer, Connie, and Beverly J. Trezek. 2015. *Early literacy development in deaf children*. New York: Oxford Univ. Press.

  This book provides an in-depth look at the research on how deaf children develop literacy skills. Provides a model of literacy teaching and learning and offers a comparison of deaf and hard-of-hearing children to a diverse range of hearing peers.

- Robertson, Lyn. 2013. *Literacy and deafness: Listening and spoken language*. San Diego, CA: Plural.

A book on how advancements in listening technologies are related to literacy learning in children who are deaf and hard-of-hearing.

- Schirmer, Brenda R. 2000. *Language and literacy development in children who are deaf*. 2d ed. Needham Heights, MA: Allyn & Bacon.

  A resource for teachers on how children develop language through conversation, reading, and writing.

- Scott, George A. 2011. *Deaf and hard of hearing children: Federal support for developing language and literacy*. Report to Congressional Requesters. GAO-11–357. Washington, DC: US Government Accountability Office.

  Report on federal programs supporting deaf and hard-of-hearing children, focusing specifically on academic placements and acquisition of and level of proficiency in language and literacy. It provides an assessment of challenges meeting the unique needs of these children. It is fully available online.

- Trezek, Beverly, Peter Paul, and Ye Wang. 2009. *Reading and deafness: Theory, research, and practice*. Clifton Park, NY: Cengage Learning.

  This textbook is a comprehensive resource for pre-service teachers of deaf students that offers research-based teaching and learning strategies covering a wide range of literacy topics.

Early Intervention

Most early intervention services are available to children and families through the Individuals with Disabilities Education Act (IDEA), Part C (See Laws and Related Documents) in their states. Starting a partnership between families and professionals at this early stage helps the child, family, and community. Early intervention services provide information and support with the use and care for assistive technology, audiological services, family training, and speech-language pathology to meet the unique needs of the child. Deaf and hard-of-hearing infants whose hearing abilities are assessed within the first few months of life and have family involvement and support from early intervention programs are more likely to experience age-appropriate growth in language, communication, and social-emotional development than those who do not receive similar support. Yoshinaga-Itano 2003 shows that the age of identification and initiation to early intervention services are positively and significantly related to language, speech, and social-emotional development. Although all infants receive hearing screenings, many still do not receive early intervention services in a timely manner. Moeller 2000 identifies factors that contribute to the challenges of providing quality services, including professionals who are not prepared to work with infants who are deaf and hard-of-hearing. While state agencies are expected to have comprehensive resources available for professionals and families, many states are still developing those resources (see Laws and Related Documents). One of the primary goals for early intervention is to support parent-child communication. Early interventionists whose practices are research-based and who respect family values offer optimal

experiences for infants who are deaf and hard-of-hearing and their families (Moeller, et al. 2013). Upon discovering that a child is deaf and hard-of-hearing, families are often offered an either/or choice between an oral pathway and a signing pathway but they also need support that goes beyond that initial decision. They need guidance regarding the linguistic and educational aspects of their child's future. Snoddon 2008 suggests that a visual language (see Language Acquisition) is critical for deaf and hard-of-hearing infants to acquire a foundation in language, especially when hearing is not accessible to all infants even with hearing technologies. Dornan, et al. 2010 proposes that access to spoken language is a viable and effective option for a specific population of children with hearing loss when auditory-verbal therapy is used. Moeller and Mixan 2016 emphasizes the importance of well-selected and closely monitored hearing technologies used with young children who are deaf and hard-of-hearing in order to maximize auditory learning and minimize language deprivation.

- Dornan, Dimity, Louise Hickson, Bruce Murdoch, Todd Houston, and Gabriella Constantinescu. 2010. Is auditory-verbal therapy effective for children with hearing loss? *The Volta Review* 110.3: 361–387.

  This study compared the academic outcomes of hearing peers to those of children with 40dB hearing levels in the better ear and prelingually deafened by eighteen months of age who attended a weekly educational program for intensive one-on-one auditory-verbal therapy and wore hearing devices with family members who spoke English only.

- Moeller, Mary. 2000. Early intervention and language development in children who are deaf and hard of hearing. *Pediatrics* 106.3.

  Examines the impact of early intervention and language development and suggests that successful language development occurs when early identification and early intervention are paired with high levels of family involvement.

- Moeller, Mary, Gwen Carr, Leanne Seaver, Arlene Stredler-Brown, and Daniel Holzinger. 2013. Best practices in family centered early intervention for children who are deaf or hard-of-hearing: An international consensus statement. *Journal of Deaf Studies and Deaf Education* 18.4: 429–445.

  Professionals in the field of international-level early intervention for deaf and hard-of-hearing infants developed ten foundational principles with the goal of guiding the implementation of family-centered early interventions (FCEIs). Interventions must be based on explicit principles, validated practices, and best available research while being respectful of family values and strengths.

- Moeller, Mary, and Kristy Mixan. 2016. Family-centered early intervention: Principles, practices and supporting research. In *Promoting language and literacy in children who are deaf and hard of hearing*. Edited by M. P. Moeller, D. J. Ertmer, and C. Stoel-Gammon, 77–106. Baltimore: Paul H. Brookes.

The authors suggest four strategies for providing early communication, including supporting families with ample resources, providing linguistically rich environments, accessing hearing technologies that focus on active promotion of auditory learning, and providing early intervention programs that support families' choice of their communication approach(es) to prevent or minimize language delays in children who are deaf and hard-of-hearing.

- Snoddon, Kristin. 2008. American Sign Language and early intervention. *Canadian Modern Language Review* 64.4: 581–604.

  This article presents an applied linguistics perspective on early intervention policies and programs for deaf children in Canada. Early hearing screening and intervention programs hold promise for deaf children's language development, and the author raises concerns that a wide range of options are not made available to families with deaf infants.

- Yoshinaga-Itano, Christine. 2003. From screening to early identification and intervention: Discovering predictors to successful outcomes for children with significant hearing loss. *Journal of Deaf Studies and Deaf Education* 3.1: 11–30.

  This longitudinal study of deaf and hard-of-hearing children examines the relationship between the age of initiation into early intervention services and achievement of developmental milestones. The findings show that the age of identification and initiation of services have a strong impact on language, speech, and social-emotional development.

For Families

Family involvement is paramount to deaf and hard-of-hearing children's overall development, but specifically in the language and communication aspects. Families need opportunities to develop the skills they need to foster effective early communication. The benefits of early identification and early intervention have exceeded expectations and have positively changed the outlook for children who are deaf and hard-of-hearing and their families. Sass-Lehrer and Bodner-Johnson 2003 discusses unique characteristics of early intervention programs and models that support families with deaf and hard-of-hearing children. Simply participating in an early intervention program is not enough according to Young and Tattersall 2005, and professionals and family members should also establish high expectations for their child's development. Families often do not realize the powerful influence they have over their child's development and their role as partners in early intervention services (Meadow-Orlans, et al. 2003). The groundbreaking Yoshinaga-Itano 2006 stated that when early identification and early intervention are provided regularly prior to the infant's first birthday, their spoken language skills are comparable to those of their hearing peers by age five. The maternal relationship and communication skills with infants are a crucial part of language development. Calderon 2000 examined the mother's communication skills and asserted that they were a good predictor of a deaf and hard-of-hearing child's language skills and subsequent early reading skills.

- Calderon, Rosemary. 2000. Parental involvement in deaf children's education programs as a predictor for child's language, early reading, and social-emotional development. *Journal of Deaf Studies and Deaf Education* 5.2: 140–155.

  The study's findings show that parental involvement in their deaf child's education program can positively contribute to their academic performance; however, parental communication skill is a significant predictor for positive language and academic development. Suggestions are offered to enhance family involvement and communication skills for family members.

- Meadow-Orlans, Kathryn, Donna Mertens, and Marilyn Sass-Lehrer. 2003. *Parents and their deaf infants: The early years*. Washington, DC: Gallaudet Univ. Press.

  This resource is for families, as it provides an overview of results of a nationwide survey of families with deaf and hard-of-hearing children. The survey shared responses about children's behaviors and language usage, how family members seek support, and identified minority group families as the most overlooked population.

- Sass-Lehrer, Marilyn, and Barbara Bodner-Johnson. 2003. Early intervention: Family-centered programming. In *The Oxford handbook of deaf studies, language, and education*. Edited by M. Marschark and P. Spencer, 65–81. New York: Oxford Univ. Press.

  This chapter discusses the types and characteristics of early intervention programs available for deaf and hard-of-hearing infants and children. Along with the qualifications of service providers, positive characteristics include being family centered, collaborative, interdisciplinary, assessment based, culturally responsive, and community based.

- Yoshinaga-Itano, Christine. 2006. Early identification, communication, modality, and the development of spoken language development: Patterns and considerations. In *Advances in spoken language development of deaf children and hard of hearing children*. Edited by B. Schick and P. Spencer, 298–327. New York: Oxford Univ. Press.

  Examines the benefits of early identification and early intervention for children who are deaf and hard-of-hearing who are developing spoken language skills. When infants' hearing abilities are identified early and early intervention services are provided regularly, the spoken language skills are comparable to those of their hearing peers.

- Young, Alys, and Helen Tattersall. 2005. Parents evaluative accounts of the process of the newborn hearing screening. *Journal of Deaf Studies and Deaf Education* 10.2: 134–145.

  The study explores the quality of high expectations for deaf and hard-of-hearing children as set by professionals and family members. Having early identification and intervention services is not enough, and expectations play a role in ensuring skilled professionals and specialized programming support the child's development.

For Professionals

The widespread availability of newborn hearing screening programs means that almost all deaf and hard-of-hearing infants and toddlers will be identified early and receive early intervention services. The increase in early intervention services is the result of aggressive efforts to implement newborn hearing screening programs throughout the country (Joint Committee on Infant Hearing 2007). All fifty states have established newborn hearing screening programs; however, resources available vary from state to state. Approximately 90 percent of deaf and hard-of-hearing children are born to hearing parents who usually know very little about deafness or sign language, and rely on their primary care physicians for information, support, and referrals (Kushalnagar, et al. 2010). The majority of professionals in the medical field see the child from a clinical or pathological perspective, and they lack knowledge about the linguistic, literacy, and academic needs of the child (Larwood and LaGrande 2004). Bodner-Johnson and Sass-Lehrer 2003 reports when the cultural and linguistic framework is used to view the child and to support and guide the selection and design of early intervention services, the experiences and outcomes for the family and child are enhanced. Deaf and hard-of-hearing children's outcomes are improved when professionals working with them have specialized training in supporting their visual and linguistic needs (Yoshinaga-Itano 2014). For working with families who have chosen an oral approach, Boothroyd and Gatty 2011 recommends optimizing the hard-of-hearing child's hearing levels with assistive hearing devices and speech-based therapy in various settings (clinical, school, or at home) in creating an advantageous auditory-based learning environment.

- Bodner-Johnson, Barbara, and Marilyn Sass-Lehrer, eds. 2003. *The young deaf or hard of hearing child: A family centered approach to early education*. Baltimore: Paul H. Brookes.

  This book provides early intervention professionals with guiding principles and strategies for working with deaf and hard-of-hearing children and their families. The emphasis is on the community, cultural, and linguistic viewpoints to support their language and literacy needs.

- Boothroyd, Arthur, and Janice Gatty. 2011. *The deaf child in a hearing family: Nurturing development*. San Diego, CA: Plural.

  This book is a resource for special educators and other professionals working with families who have chosen an oral approach for their deaf and hard-of-hearing children. Provides an overview of assistive listening devices and speech therapy options to optimize children's hearing to enrich their learning environment.

- Joint Committee on Infant Hearing. 2007. Year 2007 position statement: Principles and guidelines for early hearing detection and intervention. *Pediatrics* 120.4: 898–921.

  From the American Academy of Pediatrics, a Joint Committee on Infant Hearing (JCIH) was established to provide guidance to early hearing detection and intervention (EHDI) to maximize linguistic competence and literacy development for deaf and hard-of-hearing

children by requiring universal newborn hearing screening and providing early intervention services.

- Kushalnagar, Poorna, Gaurav Mathur, Christopher Moreland, et al. 2010. Infants and children with hearing loss need early language access. *The Journal of Clinical Ethics* 21:143–154.

  This article is geared toward primary care professionals and medical advisors emphasizing the importance of deaf and hard-of-hearing children being exposed to good language models in both visual and auditory modalities to ensure proper cognitive, psychological, and educational development.

- Larwood, Lou, and Jamilee LaGrande. 2004. Early intervention collaboration: Deaf role models. *Academic Exchange Quarterly* 8.3.

  This resource highlights the benefits of having a Deaf role model assigned to families with deaf and hard-of-hearing children. The benefits include learning how to communicate with their child, making the child's world more visual and accessible, and working through challenges of educational, cognitive, and linguistic management.

- Yoshinaga-Itano, Christine. 2014. Principles and guidelines for early intervention after confirmation that a child is deaf or hard of hearing. *Journal of Deaf Studies and Deaf Education* 19.2: 143–175.

  This is a supplement to the [Joint Committee on Infant Hearing 2007](#) Position Statement. It offers twelve best-practice guidelines to meet the needs of deaf and hard-of-hearing children.

Social-Emotional Development

Social-emotional skills include the ability to interact with others, show empathy, understand others' perspective, and possess self-control, self-direction, and tolerance and flexibility for change ([Lytle and Oliva 2016](#)). Social-emotional development begins at home with the most basic of parent-child interactions. These interactions depend heavily on language acquisition and communication skills, which allow the child to establish relationships with the people in their environment and in turn fuel their development. As such, deaf and hard-of-hearing children who are not exposed to language early are at a disadvantage ([Antia, et al. 2011](#); [Lytle and Oliva 2016](#)). [Calderon 2000](#) reported that parental communication skills positively correlated with social-emotional adjustment, while maternal use of additional services resulted in poorer outcomes when early intervention services were accessed late. The quality and quantity of peer interaction of deaf and hard of hard-of-hearing children have been reported to be brief, less frequent, and often focused on familiar and concrete events across settings as compared to hearing peers ([Antia, et al. 2011](#)). Research on deaf and hard-of-hearing adolescents in mainstream settings reported feelings of isolation, bullying, and communication difficulties with parents and peers ([Kent 2003](#)). However, a study on deaf and hard-of-hearing students' social-emotional adjustment as they transitioned to college found more similarities with their hearing

peers than differences (Lukomski 2007). Calderon and Greenberg 2011 emphasizes that parents, school systems, and community play distinct but interwoven roles in the social formation of children who are deaf and hard-of-hearing. While some studies have focused on the impact that hearing levels and educational settings have on social-emotional adjustment, researchers agree that generalizations cannot be made from individual studies because of the inherent heterogeneity of the population at hand and the changing factors that evolving hearing technologies create (Antia, et al. 2011; Calderon and Greenberg 2011; Kluwin, et al. 2002;).

- Antia, Shirin D., Kathryn H. Kreimeyer, Kelly K. Metz, and Sonya Spolsky. 2011. Peer interactions of deaf and hard-of-hearing children. In *The Oxford handbook of deaf studies, language, and education*. Vol. 1. Edited by M. Marschark and P. Spencer. Oxford and New York: Oxford Univ. Press.

  A review of studies focusing on the quality and quantity of peer interaction across school settings. Comparisons are presented, when appropriate, between deaf and hard-of-hearing children and their hearing counterparts, and emphasis is placed on the role of communication skills during peer interaction. Interventions programs that aim to increase social skills and their effectiveness in specific school settings are also discussed.

- Calderon, Rosemary. 2000. Parent involvement in deaf children's education programs as a predictor of child's language, reading, and social emotional development. *Journal of Deaf Studies and Deaf Education* 5.2: 140–155.

  Early intervention teachers rated the impact of parental involvement on children's language development, early reading skills, and positive and negative measures of social-emotional development. Maternal communication skills were identified as the strongest predictor of a child's language development and future academic success, while the mothers' use of support services resulted in poorer social-emotional adjustment for the children.

- Calderon, Rosemary, and Mark T. Greenberg. 2011. Social and emotional development of deaf children: Family, school, and program effects. In *The Oxford handbook of deaf studies, language, and education*. Vol. 1. Edited by M. Marschark and P. Spencer. Oxford and New York: Oxford Univ. Press.

  A review of the literature, predominately from the 1990s, describes the key skills needed for a healthy social-emotional development and the challenges faced by deaf and hard-of-hearing children to attain these skills due to the lack of early access to language, parenting style, quality of parent-child interactions, and delayed identity formation. Emphasis is placed on the roles of the family, schools, and community.

- Kent, B. A. 2003. Identity issues for hard-of-hearing adolescents aged 11, 13, and 15 in mainstream settings. *Journal of Deaf Studies and Deaf Education* 8.3: 315–324.

  The study investigated the identity issues and health behaviors of hard-of-hearing adolescents from eighteen mainstreamed schools in New Zealand. Findings indicate that

students who self- identified as having a disability were more likely to experience isolation and bullying, reflecting the risks and stigma that students encounter in mainstream programs.

- Kluwin, Thomas, Michael S. Stinson, and Gina M. Colarossi. 2002. Social processes and outcomes of in-school contact between deaf and hearing peers. *Journal of Deaf Studies and Deaf Education* 7.3: 200–231.

  A review of studies on social processes and outcomes for deaf and hard-of-hearing students educated with hearing peers. They identified four overarching themes in the literature: social skills, interaction/participation, sociometric status/acceptance, and affective functioning. Detailed descriptions of relevant findings and subcategories are provided under each theme.

- Lukomski, Jennifer. 2007. Deaf college students' perceptions of their social-emotional adjustment. *Journal of Deaf Studies and Deaf Education* 12.4: 486–494.

  The responses of 205 college-aged deaf and hard-of-hearing students were compared with the responses of 185 hearing students to determine the impact of hearing status on the perception of social adjustment behaviors as both groups transitioned to college. Results yielded more similarities than differences. Two marked differences included: deaf and hard-of-hearing students reported home-related social-emotional difficulties and deaf females reported higher levels of worry.

- Lytle, Linda R., and Gina A. Oliva. 2016. *Raising the whole child: Addressing social-emotional development in deaf children*. Research Brief No. 11. Washington, DC: Visual Language and Visual Learning Science of Learning Center.

  A review of the literature on the importance of social-emotional development and its symbiotic relationship with language development. The role of families and schools, and the impact that misperceptions about hearing levels have on children's social development, are discussed. Also included are tips for parents and educators to help maximize early communication and social interaction.

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